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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,522	09/09/2003	Maxime Moreno	SP02-197	4714
22928	7590	02/23/2006	EXAMINER	
CORNING INCORPORATED			LEUNG, JENNIFER A	
SP-TI-3-1				
CORNING, NY 14831			ART UNIT	PAPER NUMBER
			1764	
DATE MAILED: 02/23/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/659,522

Applicant(s)

MORENO ET AL.

Examiner

Jennifer A. Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9-9-03</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 5 and 7-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 5, it is unclear as to the structural limitation applicant is attempting to recite by, “the microreactor is configured to accommodate any of a plurality of operations” because it is unclear as to what configuration of the microreactor is necessary for enabling the microreactor to accommodate said operations, and it is unclear as to what kinds of operations are intended by “any of a plurality of operations”. Also, it is unclear as to the relationship of the “any of a plurality of operations” to “a chemical operation” set forth in claim 1, line 5.

Regarding claim 7, it is unclear as to the structural limitation applicant is attempting to recite in lines 3-6 because it appears that the limitation contains grammatical and/or typographical errors. For instance, “a microreactor comprising a wherein the microreactor” (line 3) is an incomplete sentence. Also, it is unclear as to the structural limitation applicant is attempting to recite by, “a microreactor... housed with the pressure vessel” (see line 6), and whether applicants intended to recite “a microreactor... housed within the pressure vessel.”

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3 and 5-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Swift et al. (US 4,670,404).

Regarding claim 1, Swift et al. (FIG. 1; column 5, lines 1-59) discloses an apparatus comprising: a pressure vessel (i.e., containment unit **12**, comprising sidewall **102** and top closure **104**); and a microreactor (i.e., a test vessel **10** of micro-scale) disposed in the pressure vessel; the microreactor **10** comprising a metal material (i.e., a metal container **119**).

Regarding claim 2, as best understood, the pressure vessel **102/104** defines an autoclave (i.e., an autoclave is commonly known as a strong, pressurized and heated vessel, often used for conducting laboratory experiments).

Regarding claim 3, a heat conductive medium (i.e., heater **118**, or additional heater **122**) communicates with the microreactor **10** within the pressure vessel **102/104/12**.

Regarding claim 5, as best understood, the microreactor **10** meets the claim because the microreactor is configured to accommodate chemical reactions or processes (Abstract; claim 1).

Regarding claim 6, a first inlet fluid feedline (i.e., supply line **14a/14**) passes through the pressure vessel at **102** and into the microreactor **10**, and a second inlet fluid feedline (i.e., supply line **144**) extends into the pressure vessel at **102**.

Regarding claim 7, Swift et al. discloses an apparatus (i.e., a first embodiment; see FIG. 1; column 5, lines 1-59) comprising:

a pressure vessel (i.e., containment unit **12**, comprising sidewall **102** and top closure **104**); a microreactor (i.e., a test vessel **10**, of micro-scale) disposed in the pressure vessel, the

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microreactor **10** comprising a metal material (i.e., a metal container **119**); and a sealing mechanism (i.e., O-rings **108,110** and split band fastener **106**) cooperating with the pressure vessel **102/104**.

Additionally, Swift et al. discloses a second apparatus (i.e., an alternative embodiment; see FIG. 9; column 12, line 31 to column 13, line 7) wherein the apparatus comprises: a pressure vessel (i.e., containment unit **412** comprising sidewall **402** and a top closure, not labeled; see figure); a microreactor (i.e., test vessel **410**) housed with the pressure vessel and comprising a metal material (i.e., similarly, a metal container, not labeled); and a sealing mechanism (i.e., similarly, O-rings and a split band fastener, not labeled; see figure) cooperating with the pressure vessel to maintain the microreactor and pressure vessel at elevated pressure.

Regarding claim 8, in the second apparatus (i.e., the embodiment shown in FIG. 9), the microreactor **410** and the pressure vessel **412/402** each define an internal volume, wherein the internal volume of the microreactor **410** is open to the internal volume of the pressure vessel **412/402**, via tube **452**.

Regarding claim 9, in the first apparatus (i.e., the embodiment shown in FIG. 1), the microreactor **10** and the pressure vessel **102/104** each define an internal volume, wherein the internal volume of the microreactor **10** is sealed with respect to the internal volume of the pressure vessel **102/104** (see figure).

Regarding claim 10, a heat conductive medium (i.e., heater **118** or additional heater **122** in FIG. 1; heater **418** or additional heater **422** in FIG. 9) is in thermal communication with the microreactor within the pressure vessel.

Instant claims 1-3 and 5-10 structurally read on the apparatus of Swift et al.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Swift et al. (US 4,670,404) in view of Hierholzer, Jr. et al. (US 4,433,233).

Swift et al. discloses that the heater 118 has, “conventional resistance wires as component parts thereof wound about a metal container 119.” Similarly, the additional heater 122 is, “in the form of resistance wires wound around the exterior of vessel 10 adjacent the lower portion of the cylindrical sidewall thereof.” (see column 5, lines 29-34 and 43-48). Swift et al., however, is silent as to the “conventional resistance wires” comprising SiC.

In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select a SiC material for the resistance wires in the apparatus of Swift et al., on the basis of suitability for the intended use and absent showing any unexpected results thereof, because SiC resistive heating elements are commercially available and the use of SiC as

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a material for constructing resistive heating elements is well known in the art, as evidenced by Hierholzer, Jr. et al. (see prior art discussion in column 1, line 28 to column 2, line 34).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer A. Leung

February 17, 2006




HIEN TRAN
PRIMARY EXAMINER